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### Hood Canal Coordinating Council Aquatic Rehabilitation Program for Low Dissolved Oxygen

Wastewater and OnSites Workgroup  
Meeting Notes  
March 22, 2010; 10:00AM to 1:00 PM  
Poulsbo, Washington

#### ATTENDANCE

Bob Hager, LHCWS Coalition and HCDOP  
Bob Simmons, WSU Mason County  
David Dunn, Dept. of Ecology  
Duane Fagergren, Puget Sound Partnership and HCDOP  
Emmett Dobey, Mason County  
John Eliasson, Dept. of Health  
Julie Horowitz, HCCC  
Karen Burgess, Dept. of Ecology  
Keith Grellner, Kitsap Health District  
Mike Brett, University of Washington  
Neil Harrington, Jefferson Environmental Health  
Richard Brocksmith, HCCC  
Robin Lawlis, HCCC  
Scott Brewer, HCCC  
Stuart Glasoe, Washington Dept. of Health  
Terry Hull, ShoreBank Enterprise Cascadia  
Tom Strong, Skokomish Tribe

**Unable to Attend:** Debbie Riley, Mason County Env. Health; Teri King, Washington Sea Grant; Jo Ellen Henry, EPA WA Operations Office; Greg Zentner, Ecy SWRO  
Terri Heikkila, WA State Parks and Rec.

Duane Fagergren distributed the agenda and facilitated the meeting beginning with introductions. This is the first meeting of the workgroup.

Scott Brewer began with an explanation of the HCCC workgroups charge, purpose and timeline, and an overview of the HCCC work group. One goal of the HCCC Board of Directors is to get the Hood Canal delisted under the Clean Water Act (or perhaps more appropriately, undergo a cleanup program to reduce human nitrogen sources so oxygen depression from these sources is less than 0.2 mg/L), and another is to keep that body off the list of impaired water bodies and ultimately to get the watershed to a biologically

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healthy state to improve socioeconomic opportunities. The HCCC TAC recommended forming a structure of three topic areas, that is, three workgroups: (1) stormwater and land use practices, facilitated by Phil Wiatrak, (2) wastewater and on-site septic systems, facilitated by Duane Fagergren, and (3) habitat, which includes riparian, agriculture and forestry, co-facilitated by Dan Hannafious and Richard Brocksmith. A fourth parallel effort on Education and Public Involvement will be led by Sue Texeira of the HCCC. Many of the issues are related which means there will be some overlap among the groups. This is a work in progress. We need to focus on an action plan that addresses why the water bodies are listed as impaired. All of the groups need to come up with a compelling and clear Action Plan that will be useful for the HCCC board and for tribal and state efforts targeted on Hood Canal. The other plan that it would roll up into is the *Hood Canal Integrated Watershed Management Plan* (IWMP). The issue of Low Dissolved Oxygen will be incorporated into this IWMP as well. We want to work with the Puget Sound Partnership and the state Legislature on the Hood Canal LDO issue and corrective actions. We will review the cleanup actions and salmon recovery actions identified in each topical area to confirm the list of actions are reasonable and responsive to HC's recovery for water quality and salmon.

Duane distributed a broad "Problem Statement" for Wastewater including OSS. He explained it was edited by HCDOP IAM Program Leads Newton and Richey to improve the language to make it more true to their scientific and modeling predictions. This is a uniform description of a problem for wastewater, which mirrors the other group's efforts to identify mostly nitrogen from human sources entering into the canal and adding to the problem of hypoxia. In all three counties we've had problems with fecal coliform bacteria for decades. We need the recommendations from the OSS and wastewater experts so that improvements in water quality are more holistic than just nitrogen and its relation to dissolved oxygen. Our work should address pathogens in wastewater as well as nutrients.

Duane posted a poster-sized flow chart logic model (also sent with narrative via e-mail), Using Results Chains to Develop Objectives and Performance Measures for the 2008 Action Agenda (Puget Sound Partnership), On-site Sewage Treatment Draft in an effort to describe how we are approaching the problem of wastewater in a generic way in Puget Sound. When we get to the detailed threats, much of the strategy focuses on nutrients in Hood Canal. The "Maradi" software used to develop the "results chains" is a good start but there is room for clarification and improvement. This helps us see the whole picture and how it fits together. The experts in this workgroup need to lead certain sections of this process because of their knowledge base in order to get us to the point that it is useful for state budget and information for and use by the local governments. This original technical document can be viewed on the PS Partnership's website under Performance Management.

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Tom Strong and Emmett Dobey gave the current status of advanced wastewater facilities in Lower Hood Canal. Tom said the tribe has undertaken an Army Corp of Engineers investigation to improve the function of the Skokomish River, production of salmon population, and reduce flooding. They will see how this best fits into the diverse strategies and how the Tribe can help support the LDO effort. They are moving other initiatives forward such as moving housing out of the flood plain at the Potlatch “Bubble”. Emmett said the tribe, the county and Mason PUD #1 are working together under a Tri-Party agreement to design and build three advanced WWTPs, starting with the Potlatch facility, then to design and subsequently build the Hoodsport and Skokomish Core Reservation facility. All three will use the “MBR” (Membrane Bioreactor) process, with added capability to reduce Nitrogen.

The second project is the Belfair project with money coming from the Dept. of Commerce and other state and federal sources. Mason County started work on the Belfair advanced WWTP in January and has 3,000 ft. of sewer in the ground, land has been cleared, and they are doing the foundations for the treatment facility this week. Emmett shared some lessons learned are that the plans were more extensive than anticipated because the consulting engineer fees to design the state-of-the-art MBR treatment facility, and that it is very expensive to convert OSS systems to sewer systems. Material costs for the pipes and cement have also escalated since the original facility plan was submitted.

Emmett stated it is important that we don’t start competing one topical area against another, such as arguing that wastewater treatment is more important than land use or stormwater. The coordination effort to prioritize the projects regionally, rather than fund those that are just ‘ready to go’ is an important concept of the process. On the land use topic, we need to specifically say what the land use issues are in the problem statements for each of the topics, stormwater, wastewater, and habitat so we can gain census and discuss how each of the topics are affected by land use planning which will enable us to look at land use planning across the three topics.

Human nitrogen as it influences oxygen is a primary focus of our workgroup. There was also some discussion on how reclaimed water fits in, especially how we get it to the customer, and nitrogen removal (EPA is having a nutrient conference in SeaTac in May)--disadvantages, costs and standards are other considerations. Other advanced WWTP facilities in the Hood Canal Action Area were discussed. We may consider hosting targeted field trips to observe different types of treatment technologies.

We need to connect this to the whole problem that needs to be fixed. Lower Hood Canal is a critical geography that needs help related to hypoxia (critically low oxygen). We have appropriated funds (state and federal grants and loans) in hand for beginning

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construction of advanced WWTPs in lower Hood Canal and we are open to consider other technologies and other parts of the canal to address nitrogen removal.

This is one major charge, what we can do with smaller systems and other sites to reduce nitrogen to yield broader water quality benefits. The Hoodsport project is divided into two parts, not all of the Rural Activity center will be served. By removing the nitrogen, we hope to see a decrease incidences o fish kills. If we don't have wastewater treatment in Lower Hood Canal it will likely deteriorate with time. In densely developed areas it is the pathogens and toxins that need to be addressed, in addition to Nitrogen. The Dosewallips State Park is in the design phase for an advanced WWTP to be built on the north side of the town of Brinnon. The Brinnon community may have a future opportunity to connect to this advanced WWTP, but these connections will follow a separate path led by local residents and the Jefferson County.

One benefit of this workgroup is that it understands what's underway in terms of wastewater treatment and can identify areas that are associated with a known problem and risk and then prescribe a feasible approach to correct the problem, with an eye toward regulations and policies on such things as the Growth Management Act. We can help them make thoughtful recommendations to prioritize and rank areas we want to work in related to that topic. There was discussion on jurisdiction of utilities and the counties' comprehensive plans. If we are going to do a plan for how to make Hood Canal healthy, we should look at sewage management comprehensively, not just in densely developed areas, but also in rural areas as referenced in comp plans and OSS regulations.

Keith Grellner and Neil Harrington gave an update on onsite sewage management plans and O&M in Kitsap and Jefferson counties. Some counties have some information, no one has knowledge of everything everywhere; they are still developing databases of the best information. It takes additional resources to accelerate these database improvements, especially in this economic climate. We need one place, one format so we can see when the system was put in, the type of system, where it is located, and its distance to ground and surface water. This group can help us enhance what currently exists. That is what the HCCC board wants to know, and how this initiative can assist the counties and tribes. We don't have this information at a uniform and sufficient scale to develop a regional wastewater perspective. This is also an issue for salmon recovery, water quality, etc. Can our comprehensive plans handle this? Do we need one for the whole Hood Canal region and what is that authority? That is this broader, greater approach of the integrated watershed plan. The Hood Canal Aquatic Rehabilitation statute states this is a pilot area for innovative approaches, so to what extent are the things we could suggest to take advantage of that legislation. That is the challenge, to find out what the legislation can do to further our efforts with regard to all the topical areas.

Keith said GIS maps do exist and comprehensive plans that the county develops make sure they have adequate structures to target growth and have not addressed OSS. No one has been putting money aside to maintain and upgrade OSS systems. OSSs are not 'bad', except if they are (historically) poorly sited or failing. Over the last three years the county has permitted and installed 300 new systems. The economy and growth management restrictions have curtailed new development in Kitsap. There aren't any more rural places to be developed. In Kitsap we have not designated Hood Canal as a marine recovery area. Sanitary surveys identified 31 failures (installed in the 1930-40's) and all were upgraded. Two large OSS projects are going in by the Hood Canal Bridge. They require yearly inspections. The vast majority of existing (old) shoreline parcels are built on one acre or less. Systems were put in close to the house and slope downward toward the shore. One of the biggest problems for system repair or replacement is continued availability of financial assistance for people to repair their systems. ShoreBank has been a huge resource and success story. Over 80% of the repairs have been on the east side of Kitsap (not the Hood Canal side), but it is critical for local health districts to get permission from property owners for county inspections, and a funding option available to help them is essential (otherwise homeowners couldn't afford the recommendation the county made to fix). A good inspection program (such as Kitsap County's Pollution Identification and Correction Program (PIC) tied to a funding source is essential. They don't have detailed parcel maps on their website.

Neil said Jefferson County and Clallam County just applied for an EPA grant to get upgraded repairs in the Dungeness area and public acceptance of the PIC program is key to help people understand that homeowners need to maintain their systems. They have an O&M program but it is not fully developed, and mandatory inspection is required only at time of sale. Code is not enforced; they tried to do a revision but it wouldn't pass a public vote. He speculated that if voluntary inspection by homeowners were an option, the code revision would probably pass. They have a grant to do some corrections in the action area, modeled on Kitsap SWM Program. In terms of mapping, they have maps of which parcels have septic systems and what year or era of septic code. The map needs more data (12,000 to 15,000 septic systems). They also found that the ShoreBank septic loan program has opened some doors for them. The website has some parcel information, but not a good map of the total HC area. Every septic permit is tied to parcels and can be viewed on-line now.

It was suggested that a central place to store the maps would be beneficial. However, there are different dates by counties for revisions; they have been doing this on their own. State Health is working with counties to standardize to the extent possible. Funding has been cut to DOH so the headway they made will be delayed.

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Stuart Glasoe and David Dunn reviewed DOH and Ecology's roles in WW programs as relates to Hood Canal. The work the state does is a partnership with local governments. Counties can adopt minimum management plans or make more stringent ones; they are all written differently; Kitsap has the most advanced in the state, likely. These management plans are young, evolving programs, and they are still trying to figure out how to design and implement programs to get buy-in from public. OSS systems need management and regular inspection to confirm continued proper operation. There is no accurate inventory or inventory of soil conditions, where they are located, etc. Local jurisdictions have provided some information; they need selective performance measures and then transfer that information into GIS-referenced maps. This is what this group and the HCCC can bring into the local programs. They aim to adopt a new rule with their expanded authority for OSS systems from 3500-100,000 gallons -a - day systems, as permits expire—this will be done not only for public health but also environmental protection. Finding, permitting, evaluating and improving systems are important to the program. They will be applying it to new and existing systems, site risk surveys on impact, and a hydro-geo analysis to understand flows and groundwater driven to protect health. This approach may affect Hood Canal and nitrogen and technology development. The top priority will be systems in marine recovery areas around Puget Sound. We need counties to help with this.

Specific to nitrogen reduction, the state program provided standards to local health districts starting in 1942. Systems are a combination of low to high nitrogen removal based on when they were installed. State rules have evolved to address treatment issues of failing systems along marine shorelines. It will be up to local jurisdiction to decide what level of treatment is desired. Do we need to have further nitrogen levels for systems in ground now and which ones to target are key considerations? Part of the problem is retrofitting and the cost passed along to the homeowner. We have systems that take care of the problem but they are more costly and we aren't sure if that is what we really need. Public domain technologies come from demonstration project, university projects that are funded, with data that shows it provides treatment performance according to testing protocols—that is the weak link, along with funding sources for developing these technologies.

The large OSS systems require an operating permit that has to be reapplied annually. This is different for new and existing systems. New construction will have O&M manuals and prescribed intervals and monitoring requirements. Local health departments have requirements for ongoing maintenance, which may not require a permit, but there is a variety of ways to get it done. Some counties want to require inspections, not contracts. An certified OSS specialist or the homeowner may do the inspection, which is better than being locked into a contract that can be expensive over time. Counties get a lot of push back on contract requirements so a different approach with regular inspections may be more effective. There was additional discussion of on-

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site maintenance. This is a good area for us to continue discussion as it relates to the nitrogen program for the Hood Canal, to look at high-risk areas (age of system, where the drain field is, etc.) and cost-effective solutions.

Ecology doesn't play a regulatory role for OSSs except when a development of 350 homes or greater requires them to issue a permit. Ecology does get involved in setting and enforcing water quality standards. They manage federal subsidized loan programs targeting water quality. They capitalize local SRF loan programs which can be turned into micro-loans to the homeowner; they can subsidize with grant money—they do a lot of non-point small activities projects, for example, they can fund riparian restoration work. They could also fund stormwater projects and pilot projects to see what works and make recommendations for the future.

Michael Brett reported on some research led by the UW. By looking at old drain fields behinds people's bulkheads, high concentrations of pathogens and nitrogen existed. Small existing lots and technologies we are using tend to discharge to surface water. They found that the water in the drain fields directly behind bulkheads was 99% salt water, which indicates daily direct discharge occurs in these cases and should be addressed as a high-risk threat to the canal, not only for nutrients, but primarily for pathogens. A good demonstration project would be looking at homeowners in small bulkhead areas and do a cluster system and see if it improves. This is why we need to get together to consider funding ideas with EPA in 2010 (\$50 million for all of Puget Sound). We need to look at our funding to see how we can support options for treatment in cases where poor soils and inadequate dissipation areas exist.

Terry Hull discussed funding for OSS repairs and status of ShoreBank's loan program. In 2005 when the HCDOP Corrective Action and Education Program evolved, ShoreBank broaden an existing OSS repair model to the Hood Canal Watershed. Through an inter-local agreement with the HCCC, ShoreBank became the mechanism for providing loans for septic systems serving the three counties in the Hood Canal and tribal areas. They issued (or have in process) 240 loans to date and include major repairs and replacement. Terry gave a history of ShoreBank and an overview of how the program works. They hope to expand the program over the next few years. It will take another \$9 million to capitalize the sustainable loans they are making in the three counties bordering Hood Canal. They need more money (\$60 million) to expand the program geographically throughout Puget Sound region. In terms of the HCCC, they see the agreement as a good model for an approach of a consistent policy over a broad geography. The program should service all of the constituents beyond defined geography (of Hood Canal in this case).

We need to brainstorm how we will work towards recommendations to the HCCC (including priority categories for our work). Each member should send Duane ideas for

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proceeding. Logically, we can consider doing this work in specialized areas to use expertise and interest in people in specific areas,( i.e. OSS utilities , N-reducing technologies, advanced waste water systems, community cluster systems for OSSs.)

Duane and Scott should put together an outline or a table of contents for the final product to guide the members to split into working sub-groups. This 'straw dog' outline will be circulated before our next meeting for comment and revision.

The next meeting will be early to mid-April. Duane and Scott will send a [www.doodle.com](http://www.doodle.com) calendar link for scheduling. Other subcommittees meet every two to three weeks. Webex may be more efficient for the next meeting to save on travel time.